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ABSTRACT

This publication summarizes the findings of several initiatives in studying the health aspects of secondary agriculture teachers in the United States. The study was specifically conducted to determine the health experiences of secondary agriculture teachers, the health problems that cause them to miss work, their health care concerns, personal variables related to health, and the interaction between health and teacher efficacy. A literature search found most previous studies concentrating on illness rather than wellness, as well as some support for a relationship between teacher absence and lack of efficacy. A questionnaire was developed and administered to a sample of 502 vocational agriculture teachers selected from the 12,053 names listed in the 1987 "Agriculture Teachers Directory," with 303 usable questionnaires returned. Some of the findings are the following: (1) teachers most frequently experienced colds, job stress, fatigue, influenza, headaches, personal stress, teeth problems, eyesight problems, respiratory problems, and depression; (2) teachers averaged fewer than 4 days of absence per year; (3) teachers missed school most for communicable disease or surgery, not for the more frequently reported health problems that tended to be in the emotional or psychosomatic categories; (4) health concerns included job stress, laboratory injuries, circulatory problems, eyesight problems, personal stress, and hearing loss; and (5) although a causative relationship was not found between teacher efficacy and health, the most effective teachers missed fewer school days per year than less effective teachers. (Includes the questionnaire and 34 references.) (KC)

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Health Experiences, Concerns,
and Interactions with Effectiveness
of

Secondary Agriculture Teachers in the United States

by

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Foreword

This publication summarizes the findings of several initiatives in studying the health aspects of secondary agriculture teachers in the United States. The research covered approximately three years of study, development, data collection and analysis, and interpretation. A massive amount of information was collected.

The goal of providing some insight into the health status of secondary agriculture teachers and establishing certain relationships has only been partially achieved. A good foundation has been made for future initiatives.

The purpose behind the initiation of this work was to find ways of enhancing the performance of agriculture teachers. The authors have heard teachers describe how teaching has affected their health. Loss of hearing, foot problems, laboratory accidents, and exposure to communicable diseases have often been mentioned as health hazards. This research investigated various aspects of these health hazards. The reader will find that these are problems, but only to varying degrees.

The challenge of delving into the matter of teacher health has been well worth the investment of resources. Through this document the authors wish to share a summary of their findings.

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INTRODUCTION

Good health enables people to be efficient in their work and enjoy life more. The relationship of health to job performance has long been recognized. Government programs have been established to promote positive health care practices, while laws have been passed to improve the healthfulness of the work environment. Business and industry have established wellness programs to improve worker health (Plowman & Bischoff, 1985). Emphasis on worksite health has been viewed as a means to reduce health care costs (Health Insurance Association of America, 1985).

Problems associated with health are costly. Absenteeism from work and likely reduced efficiency and effectiveness while at work can both add to costs. The Health Insurance Association of America (1985) has estimated that over 500 million workdays are lost annually due to illness or disability in the United States. In education, the loss is felt by every student in the classes the teacher misses.

The health of educators has received little serious attention even though educators are in critical positions. Few elementary and secondary schools have health or wellness programs in place (Plowman et al., 1985). Harmon and Storby (1988) studied the physical fitness practices of faculty in a technical college and concluded that educational institutions would do well to follow the lead of industry by paying more attention to employee health.

Health status information is not readily available for the education professions. Harlin, Jerrick, and Rosenthal (1976) attempted to study the health hazards of teaching. They defined teacher health as the physical and mental well-being of teachers. In recent years, some efforts have focused on stress, burnout, and stress management. Teacher health is much broader than stress or burnout.

Recent research has only begun to unravel health experiences and concerns of educators. A study of university-level agriculture teachers (Vaughn, Lee, & Westrom, 1989) found that high percentages of these individuals experienced health problems. Further, the study indicated that these individuals were concerned about health. Research on community/junior college faculty (Allen, 1990) found that health problems most definitely interrupted instruction. A study of secondary and postsecondary vocational teachers (Lee & Newman, 1990) found that this group of teachers in one state missed 17,294 days in a year because of health problems. This means that 96 full-time teachers would be needed to cover the classes due to absenteeism.

Since the work of secondary agriculture teachers varies considerably from other educators, information specific to this group is needed. Such specificity should allow for the development of strategies to introduce positive health care practices into the work environment. "Is teaching hazardous to your health?" No one knows the answer (Harlin et al., 1976).

Emphasis on education reform and social problems, such as drugs, teenage pregnancy, and crime in the school environment, has placed additional demands on educators. Agriculture teachers are usually expected to carry out a program of education that includes classroom and laboratory instruction, supervised experience for students, and student organization activities. Further, agricultural education has been an area with unique concerns, such as declining enrollment, depressed agriculture economy, and, to some extent, decreased emphasis on vocational education. The place to begin is with an assessment of the health care experiences of teachers.

Objectives

Five objectives were developed for the research reported here on the health status of secondary agriculture teachers in the United States, as follows:

1. to determine the health experiences of these individuals as teachers;
2. to determine the health care problems which caused teachers to miss work and the number of days missed;
3. to determine the health care concerns about a broad range of health items;
4. to determine relationships of selected personal variables to health; and
5. to investigate the interaction of health and teacher efficacy.

Rationale for Study

Health data are available for numerous professions, but not the education profession. Logic would support the viewpoint that the learning program is effected by teacher health. It has been pointed out that teachers believe health hazards exist in teaching. Plowman (1985) stated that large numbers of corporations and colleges have implemented physical fitness or wellness programs because it improves job performance. He adds that few elementary or secondary schools have health or wellness programs in place. Why? A logical explanation may lie in the lack of knowledge and research verifying the health status of teachers. The first step in acquiring knowledge is to build a data base of information. This study has begun gathering the data on teacher health. It can serve as a springboard for future studies on teacher health and wellness as related to the learning environment.

Limitations

The findings of this study are limited to the secondary agriculture teachers in the United States who were teaching in the 1986-87 school year and listed in the national agriculture teachers directory.

Definitions of Terms

The following definitions are offered for terms used in this research:
Health - Complete physical, mental, and social well-being and not just the absence of disease.

Teacher health - the mental or physical well-being or problems of teachers at the secondary or elementary level.

Health status - The composite of teacher health components, their severity, and the perceptions teachers have of them.

Health problems - Any mental or physical problem that contributes to a less than 100% healthy condition.

Wellness program - A program designed to maintain the health of constituents at 100% or as near to it as possible.

Health concern - A possible health care problem that may cause teachers trouble or distress.

BACKGROUND FOR THE RESEARCH - WHAT THE LITERATURE HAS TO SAY

Interest in health matters has probably never been higher than it is today. Longevity and quality of life are definitely functions of health status. The President's Council on Physical Fitness and Sports found that 62% of all adults in the United States were overweight with up to half of these being obese to the point of endangering their health (Beeler, 1988).

The matter of studying the health of educators may appear rather simple on the surface. As Aday (1989) points out, however, health topics are sensitive and complex. Health problems include sociomedical diseases such as child abuse, sexual dysfunction, drug and alcohol addiction, family violence, and sexually transmitted diseases. The concept of health has often not included some of these areas.

In 1984, the schools in the United States employed 2.5 million teachers and 1.5 million staff (Wolford, Wolford, & Allensworth, 1988). Of these, one of six had hypertension, one of ten had an alcohol or drug problem, 50% were overweight, and 25% of all males died of cardiovascular disease before they reached age 65. Obviously, school employees suffer from many of the same problems as their peers in private business and industry.

Studying health experiences and concerns requires procedures that penetrate into the "... best-kept family and personal secrets" (Aday, 1989). Approaching the study of teacher health involves attempting to gather such information from individuals who are expected to serve as positive role models for their students. These individuals may be a little more reluctant to share their personal situations!

Developing a Framework for the Research

Health is described as physical and mental well-being (Harlin, 1976). "Teacher health" is physical and mental well-being of teachers. Harlin (1976) proposed ten areas to assess in evaluating teacher health:

- emotional or psychosomatic conditions
- absence or presence of communicable diseases
- systemic conditions
- orthopedic conditions
- vision and hearing conditions
- weight and nutrition
- absence or presence of dental disorders
- injuries
- conditions requiring surgery
- pregnancy and child care

Emotional or Psychosomatic Conditions

Mental health problems are one of the most common reasons for teachers missing work according to Harlin (1976). Conditions related to emotional or psychosomatic conditions can manifest themselves in numerous ways.

Stress is present in today's schools. Tunnecliffe, Leach, and Tunnecliffe (1986) report a National Education Association study that found that 78% of all teachers experienced moderate to considerable stress. Since stress is manifested as physical and emotional responses to real or imagined stressors (Eskridge & Coker, 1985), it may cause behavioral or physical problems. Eskridge, et al. (1985) cite behavioral changes such as anxiety, depression, irritability, loss of caring for people, paranoia, feelings of helplessness, and frustration. Physical problems include minor symptoms such as fatigue, insomnia, headaches, skin rash, weight loss, or gastrointestinal problems and major problems such as high blood pressure, cardiovascular difficulties, ulcers, shortness of breath, and gastrointestinal disturbances.

Burnout occurs when a teacher is unable to cope with stress which may result in recurring physical and/or mental illness that leads to a career crisis (Eskridge et al., 1985). This crisis could be teaching deterioration, personality changes, alcohol or drug abuse, or abandonment of the profession.

Other mental and emotional difficulties can range from not wanting to face the day to more serious problems like schizophrenia (Harlin, 1976). Symptoms of these mental health problems are more easily identified than the problem itself. Alcohol or drug abuse are symptoms commonly identified with mental health problems, according to Harlin (1976).

Absence or Presence of Communicable Diseases

Colds, flu, and respiratory problems are the most common communicable diseases. Colds account for most of the one, two, and three-day teacher absences according to Harlin (1976). Landsmann (1978) reports that 81% of teachers have at least one cold each year. She adds that 36% experience the flu. Respiratory problems are more commonly experienced by first-year teachers (Harlin, 1976).

Systemic Conditions

A human body is comprised of several systems; each needs to run smoothly for a person to be healthy. Harlin (1976) describes the systems as:

- Cardiovascular system (heart and blood vessels)
- Respiratory system (mouth, nose, trachea, bronchial tubes, and lungs)
- Gastrointestinal system (stomach, intestines, and digestive organs)
- Genitourinary system (organs of reproduction, kidneys, and urinary bladder)
- Endocrine system (ductless glands)
- Skin and muscular skeletal system (bones, muscles, and joints)
- Nervous system (brain, spinal cord, and nerves)

The gastrointestinal system is a common source of problems for teachers. Harlin (1976) quotes a New York physician as saying "Many teachers start to develop ulcers and colitis after five to six years of teaching."

Orthopedic Conditions

The orthopedic category includes foot-related problems, intervertebral disc problems, fractures, torn knee cartilages, bursitis, bunions, and arthritis (Harlin, 1976). How these conditions may affect teaching is unknown, but Harlin (1976) believes they make teachers tired and short-tempered. Orthopedic problems are an integral component of teacher health status as a whole. Perhaps the kinds of facilities in which teachers stand and walk and the footwear they use are related to certain orthopedic problems.

Vision and Hearing Conditions

Teachers become dependent on hearing and eyesight in the rigor of teaching. Vision problems can range from poor vision, eye strain, and tension to more serious problems such as glaucoma and diabetes (Harlin, 1976).

Hearing loss may be an even more serious problem according to Harlin (1976), as it may alter classroom activities when students' comments, responses, or questions are not heard. Miller (1986) reports that studies have shown excess noise levels to be potentially dangerous for both teachers and students. Agriculture teachers are often involved in laboratory activities where excessive noise may be produced.

Weight and Nutrition

Landsmann (1978) reports that weight, diet, and exercise are listed by teachers as major concerns, yet Plowman (1985) states that few elementary or secondary schools have wellness or physical fitness programs. A wellness program is described by Plowman (1985) as one that addresses physical fitness, nutrition, health risks, and stress management. He adds that research has shown that lack of physical fitness negatively affects job performance. The study also concluded that principals and teachers agreed that both job performance and stress management were improved by wellness programs.

Diet conscious teachers may be aware that excess weight contributes to high blood pressure (Harlin, 1976), but not aware of the added benefits of proper nutrition. If aware, they may not have or take the time to eat properly.

Absence or Presence of Dental Disorders

Dental problems such as cavities or disease can cause distracting pain. Analysis of teacher health status data should enable teachers and administrators to assess the effects that dental problems have on the teacher/learning process. Harlin (1976) states that prevention of dental problems is preferable to treatment. Data supporting Harlin may foster mutual support from school boards and teachers for contractual dental benefits.

Injuries

Harlin (1976) reports that the average loss of time for each staff accident that occurs on school property is eight days. At \$60 per day for a substitute teacher, each accident costs the school \$480. A larger, yet more difficult loss to measure, may be the detrimental effect on student learning. The injury problem is real; Landsmann (1978) reports 13% of teachers being injured over a five year period. Accidents range from falls, bites and power equipment accidents to injuries resulting from school violence mediation.

Conditions Requiring Surgery

Surgical absences range from days to months. Harlin (1976) reports that a six week period is the average absence for gynecological surgery. Open heart surgery requires four to six weeks recovery time. Other common surgeries include hernia, thyroid, prostate, breast, kidney, and reconstructive surgery. Loss of time is again a consideration, along with the uncertainty of whether teacher health is fully restored following surgery.

Pregnancy and Child Care

Maternity and paternity leaves result in absences from school. Harlin (1976) states that pregnancy and child care require significant substitute placement. Knowledge of the total impact (cost in dollars and loss in education) may encourage administrators to acquire certified personnel to fill leaves and more clearly define policy relating to pregnancy and child care.

Framework Summary

The mental and physical well-being of teachers is referred to as teacher health. The literature suggests ten areas in assessing teacher health:

- emotional or psychosomatic conditions
- absence or presence of communicable diseases
- systemic conditions
- orthopedic conditions
- weight and nutrition
- absence or presence of dental disorders
- injuries
- conditions requiring surgery
- vision and hearing conditions
- pregnancy and child care

Scientific research has and is being conducted on teacher stress, stress management and burnout; components of emotional or psychosomatic well-being. Empirically-based assessment of all other health areas is noticeably lacking relative to the teaching profession.

Teacher Efficacy and Health

Teacher efficacy can be defined as the power of a teacher to produce an effect (Westrom, 1990). How important is teacher efficacy in our schools

today? Teacher efficacy is positively related to educational outcomes (Hoover-Dempsey, Bassler, & Brissie, 1987; Ashton & Webb, 1986). Competency and teacher efficacy are highly correlated (Trentham, Silvern, & Brogdon, 1985). Trentham et al. (1985) have identified teacher efficacy as the only differentiator of teacher competency that offers any potential for change. If ways can be found to increase effects on learners, educational achievement can be enhanced.

Few would argue that a measure of successful teachers is their efficacy or their power to produce a desired effect. Logically, numerous factors contribute to teacher efficacy; health may be one of those factors. A review of the literature regarding the impact of health on teacher efficacy reveals some insights but also raises numerous unanswered questions.

Teacher Efficacy in Schools

Teacher efficacy has been identified as a critical variable in teacher effectiveness (Tracz & Gibson, 1986). Matthes (1987) added that a sense of efficacy related to student achievement was the most significant teacher attribute in effective schools. Dembo and Gibson (1985) believe that teaching efficacy is the way teachers view the general relationship between teaching and learning. Teacher efficacy may also be defined as the extent to which the teacher believes he or she effects student performance (Guskey, 1987).

The United States Department of Education recognized teacher efficacy as a major strength in superior schools (Corcoran & Wilson, 1986). The use of teacher efficacy in the evaluation of superior secondary schools is well founded. Research conducted by Trentham et al. (1985) found that high and low teacher competency groups were significantly different from each other in efficacy. The classroom behavior of high efficacy teachers differed from low efficacy teachers (Dembo & Gibson, 1985). High efficacy teachers organized their classroom in a different manner; they spent less time in small groups, and they used whole group instruction more often. The student feedback of high efficacy teachers differed in that they led students to the correct answer, whereas low efficacy teachers gave the answer to the student or called on another student. Other differences of high efficacy teachers included: (a) more time-on-task, (b) a strong academic orientation, and (c) being slower to become angry when students misbehave. Ashton listed several factors that distinguished high and low efficacy teachers. They included: (a) sense of personal responsibility for students, (b) positive expectations for student behavior and achievement, (c) personal responsibility for student learning, (d) goal-setting strategies, (e) belief in having a positive effect on students, (f) sense of control, (g) sense of common teacher/student goals, and (h) democratic decision-making with students.

Other authors examined factors that inhibited teacher efficacy. Ashton (1984) identified four factors: (a) working in isolation, (b) the difficulty in assessing one's effectiveness as a teacher (teachers tend to evaluate their effectiveness in terms of the effectiveness of other teachers), (c) lack of collegial and administrative support, and (d) sense of powerlessness from limited involvement in decision-making. The health status of the teacher was not one of the factors listed by Ashton.

The Relationships Between the Health and Efficacy of Teachers

Determining if teacher efficacy is related to health is not well documented. Most research has focused on teacher absenteeism rather than health and/or wellness. Spencer (1988) found that teacher absences reduced teacher effectiveness. The United States Department of Education found that teacher attendance rates were strengths of superior schools (Corcoran & Wilson, 1986). Matthes (1987) added that schools which nurture a sense of efficacy in teachers had lower rates of absenteeism. Not all researchers concurred with the majority. A rarely reported segment of the oft noted work of Rosenshine and Furst (1971) found that teacher absence did not have a relationship to student achievement.

Another health factor that has been frequently studied is stress. Barter (1984) cited studies that ranked teachers second only to air traffic controllers in levels of stress. Camp (1985) found that as the levels of stress for teachers increased, so did the frequency of health problems. Surprisingly, this increase in health problems did not translate to a significantly higher number of days absent. This finding gave rise to the thought that many teachers remain in the classroom even when they are experiencing a health problem.

Harlin, Jerrick, and Rosenthal (1976) stated that health is a dynamic state. Mental and physical health is not merely the absence of disease, it is the state of well-being. Harlin et al. (1976) believed that the lack of well-being may disrupt the school learning program. Yet, wellness programs are reported available to agriculture teachers in only 20% of the schools (Lee & Westrom, 1989). Further, Harlin et al. (1976) and Lee and Westrom (1989) substantiated that lack of administrative support is a common problem. Given that Ashton (1984) found lack of administrative support inhibits teacher efficacy, it is believable that the lack of teacher well-being is disrupting the school learning program.

PROCEDURE

The conduct of research on the health experiences and concerns of secondary agriculture teachers involved traditional survey methods. The most challenging task was the development of a reliable and valid instrument. This section of the report describes the procedures followed in this study.

Population and Sampling

The research reported here involved a descriptive mail survey. A systematic sample of 502 vocational agriculture teachers was selected from the 12,053 names listed in the 1987 edition of the Agriculture Teachers Directory. A random entry point was established with the name of every 24th teacher appearing in the Directory being selected. The sample size was based on Krejcie and Morgan (1970) and previous experiences with the population (H. M. Handley, personal communication, 1988).

Instrumentation

The Educator Health Care Assessment Instrument (EHCAI) (Copyright 1988, Department of Agricultural and Extension Education, Mississippi State University) was developed following the guidelines of Sudman and Bradburn (1982). Considerable literature on health care was reviewed to establish general content parameters for the instrument. The EHCAI was designed with two major parts: Part One included health care experiences and concerns and Part Two included a number of health-related factors.

Part One relied on the work of Harlin et al. (1976) in which ten areas of teacher health that needed investigation were identified. These were collapsed into nine areas on the EHCAI, as follows: injuries, surgery, dental conditions, emotional or psychosomatic conditions, communicable diseases, orthopedic conditions, systemic conditions, pregnancy/child care, and vision/hearing conditions. The tenth area proposed by Harlin was weight and nutrition. (Weight and nutrition were included in Part Two of the EHCAI because it was considered a health-related factor.) Each of the nine areas contained two or more specific health care items to which the respondents were to provide information to three questions: "Have you experienced this health care item?" (Respondents circled "yes" or "no"), "How many days did you miss from school/work because of the health care item in the past year?" (Respondents provided the actual number of days missed) and "How much concern is the health care item to educators?" (Respondents used a five-point scale to rate the level of concern they felt the item was to teachers, with five being the highest concern and one being the lowest concern.)

Part Two, health related factors, included a number of items present in the school and personal environment that might be related to health care experiences and concerns of educators. Particular emphasis was placed on assessing the school-site environment as related to the health of educators.

A panel of ten health care and education experts validated the EHCAI. The health care experts included medical personnel in the general practice of medicine and medical education environments. The education experts included teachers in several subjects and levels, school administrators, and university faculty familiar with the environments of educators. A stratified sample of 39 secondary agriculture teachers representing the four regions of the United States was used to establish reliability. Twenty-six (69.2%) teachers in the pilot study responded. A Cronbach alpha coefficient of .85 was found on the EHCAI. (The Cronbach alpha coefficient was .97 on the data sample.)

In addition to the EHCAI, respondents were also requested to complete a short instrument to gather certain general information, such as the kind of school in which they taught, the subjects taught, the facilities used in teaching, the number of students taught, years of teaching experience, age, gender, and emphasis on educational reform in the school.

Teacher efficacy was assessed using the Teacher Efficacy Evaluation Instrument (TEEI). This instrument was developed for use with school administrators and state staff personnel in assessing the eleven leading indicators of agriculture teacher efficacy. A panel of experts reviewed the instrument to establish content validity. A Cronbach alpha coefficient of .96 for administrators and .97 for state supervisors was obtained. The eleven items used to assess teacher efficacy were: student learner outcomes, enthusiasm of teacher, teaching methods, instructional objectives, time-on-task, assuming responsibility for student learning, positive effects on students, professional organization participation, student organizational advisement, use of experiential learning activities, and overall effectiveness.

Data Collection

A modification of the total design method (Dillman, 1978) was used in gathering information from the sample. This included mailing a personalized memorandum and the EHCAI on April 15, 1988, followed five days later by a reminder card. Planned second and third mailings were not made because of the excellent response rate, lateness in the school year, and possible returns relative to dollar cost. A data sample of 303 was obtained from an accepting sample of 306. (A minimum data sample of 300 was considered adequate for the study.) Ten percent (20 teachers) of the nonrespondents were systematically selected using a random entry point for contact by telephone to obtain information to compare responses of nonrespondents and respondents. Of these, 18 were interviewed by telephone, with no substantial differences being found in their responses to the EHCAI.

Teacher efficacy information was obtained by administering the Teacher Efficacy Evaluation Instrument (TEEI) to the immediate local school administrators who oversaw the work of the teachers and the state supervisors of agricultural education who supervised the conduct of agricultural education programs.

Data Analysis

Data analysis for the research reported here involved the calculation of frequencies, sums, percentages, means, tests of significance, and discriminant analysis.

Procedures Are Evolving

This report represents only a portion of the research that has been done on educator health at Mississippi State University. The procedures to effectively and efficiently carry out such research are continually being refined. Further, variations have been used to accommodate the uniqueness of each group studied. The methods used here were those deemed most appropriate for the particular group. (The other groups studied include local-level Cooperative Extension Service professional employees; state-level specialists of the Cooperative Extension Service; community college faculty; vocational, technical, and adult educators; and university agricultural education faculty.)

FINDINGS

The findings are presented as follows: background information on the teachers, health experiences, health concerns, the interaction of health and the school as a workplace, and the interaction of health and teacher efficacy.

Background

The findings reported here are based on the responses of an accepting sample of 303 secondary agriculture teachers in the United States.

All of the respondents were teaching agriculture; however, 14% taught another subject in addition to agriculture. The respondents had been teaching an average of 15 years, with an average of 67.6 students each day in their current teaching position. They were 93% male and 7% female and had an average age of 39.7 years. Tobacco products were used by 27%. The school environment was thought by 42% to affect the health of teachers.

The respondents taught in a variety of school facilities and kinds of schools. The facilities used included: classrooms (used by 98%), mechanics laboratories (78%), outdoor/farm laboratories (59%), and horticulture laboratories (49%), with smaller percentages using a number of other facilities. The kinds of schools in which the respondents taught were: comprehensive high schools (69%), vocational centers (16%), middle/junior high schools (6%), and other schools (9%). Most of the teachers were teaching in schools involved with educational reform. Fifty-nine percent taught in schools where there had been some involvement in educational reform, 30% were in schools where there had been much involvement in educational reform, and 11% were in schools not involved with educational reform.

Health Experiences

Secondary agriculture teachers have experienced a wide range of health problems. The ten problems experienced in the school year by the most respondents were (in descending order): colds (experienced by 79%), job stress (52%), fatigue (49%), influenza (39%), headaches (37%), personal stress (34%), teeth problems (27%), eyesight problems (26%), respiratory problems (25%), and depression (24%). Other selected problems studied were experienced by fewer teachers, including some thought by the researchers to be of high concern such as hearing loss (experienced by 15%) and laboratory injuries (14%). (Table 1 presents these findings.)

Table 1

The Ten Health Items Most Frequently Experienced by Teachers

Item	Percent Experiencing	Rank
Colds**	79	1
Job Stress*	52	2
Fatigue*	49	3
Influenza**	39	4
Headaches*	37	5
Personal Stress*	34	6
Teeth Problems	27	7
Eyesight Problems	26	8
Respiratory Problems	25	9
Depression*	24	10

*Emotional/psychosomatic area.

**Communicable disease area.

Most of the health care problems experienced by teachers tended to fit into the areas of emotional and psychosomatic conditions or communicable disease. Five of the top ten health care problems were in the emotional or psychosomatic area. Two were in the communicable disease area. With some individuals the respiratory problems experienced likely were colds or influenza. It is possible that these could have been included in the communicable disease area.

Health Problems Causing Absenteeism

Health problems can cause teachers to be absent from school. In the 1986-87 school year, the following problems caused teachers to miss school (in descending order of days missed): influenza, colds, circulatory problems, genitourinary problems, major surgery, job stress, minor surgery, maternity/paternity needs, personal stress, child care, laboratory injuries, and digestive problems. The data sample missed 1,097 days due to health care problems. This equals 3.62 days average per respondent. If inferred to the population of 12,053 teachers, the secondary agriculture teachers in the United States missed 43,631 days due to health care problems in the 1986-87 school year. Slightly over 243 additional full-time teachers would have been needed to fill the classrooms and laboratories left vacant by teachers being absent with health care problems. (Table 2 presents a summary of the findings.)

Table 2

Health Care Problems Causing Teachers to Miss School

Item	Rank	Average Days Missed
Influenza	1	.429
Colds	2	.425
Circulatory	3	.293
Genitourinary	4	.274
Major Surgery	5	.205
Job Stress	6	.178
Minor Surgery	7	.175
Maternity/Paternity Needs	8	.158
Personal Stress	9	.158
Child Care	10	.145

The areas of health problems with the most days of school missed were systemic conditions, communicable diseases, emotional or psychosomatic conditions, pregnancy/child care, and surgery (both major and minor surgery). With surgery, only 18% of the respondents had experienced this area; therefore, those who did tended to miss teaching more days. The average number of days missed for those reporting in the surgery area was 2.09 days due to surgery, those teachers with systemic conditions missed 0.94 days due to systemic problems, those with communicable diseases missed 0.76 days due to communicable disease problems, those with emotional or psychosomatic conditions missed 0.31 days because of emotional or psychosomatic problems, and those reporting absences due to pregnancy/child care had an average of 2.0 days missed from school.

It should be noted that the health care problems teachers reported they had experienced did not correspond to their reasons for being absent for teaching except in the communicable disease area. The top five health care items causing teachers to miss school were not in the emotional or psychosomatic conditions area, which had the most problems experienced as reported in Table 1.

Health Care Concerns

The teachers indicated a wide range of health care concerns. A five-point Likert-type scale was used for teachers to rate their concerns. The scale was anchored at each end, with 5 being "highest concern" and 1 being "lowest concern." The six items receiving the highest ratings were (ratings are shown in parentheses): job stress (3.99), laboratory injuries (3.70), circulatory problems (3.51), eyesight problems (3.46), personal stress (3.42), and hearing loss (3.40).

Table 3

Concern of Health Care Items to Teachers

Item	<u>Ratings of Concern (n)</u>					Mean Rating	Rank
	Highest				Lowest		
	5	4	3	2	1		
Job Stress	33	36	17	4	3	3.99	1
Laboratory Injuries	28	27	23	8	6	3.70	2
Circulatory Problems	19	30	22	22	6	3.51	3
Eyesight Problems	17	31	26	10	7	3.46	4
Personal Stress	18	31	21	14	8	3.42	5
Hearing Loss	17	27	28	9	8	3.40	6
Cancer	16	23	30	9	10	3.31	7
School Injuries	16	25	24	16	9	3.24	8
AIDS	22	22	16	12	19	3.18	9
Digestive Problems	10	24	33	15	8	3.16	10

The perceived level of concern of the health care items to teachers was not congruent with their experiences and the health care reasons they had missed teaching. The only health care items appearing high in all three areas were job stress and personal stress. Teachers had considerable concern about laboratory injuries, yet this item was not among the top ten items experienced or cause of days missed. Also, some individuals might include hearing loss as a laboratory injury because the conditions in some laboratories might contribute to hearing damage.

The Interaction of Health and the School as a Workplace

The school environment and teacher health interact in several areas, according to the findings. The ten areas perceived as being the greatest environmental problems were (in descending order): laboratory noise level (25% of the data sample), laboratory air quality (23%), laboratory temperature (17%), laboratory instructional chemicals (14%), classroom temperature (14%), laboratory acoustics (12%), laboratory cleanliness (11%), laboratory safety features (11%), laboratory lighting (10%), and classroom air quality (10%).

The health of 128 teachers (42%) who stated that the school environment affected the health of educators was compared to the 161 (53%) who stated that it did not. Significant and meaningful relationships existed. The differences (by individual health item) in Table 4 indicate that teachers who perceived the school environment to affect the health of educators experienced more laboratory injuries, more abuse/violence from students, more minor surgery, greater job stress, more depression, increased insomnia, greater fatigue, and greater hearing loss.

Table 4

Relationship Between Health Experiences and School Environment of Teachers

Health Item	Phi Coefficient*
Fatigue	.23
Laboratory Injuries	.21
Insomnia	.18
Hearing Loss	.17
Student Abuse/Violence	.17
Depression	.16
Job Stress	.15
Minor Surgery	.15

* $p \leq .05$

The differences (by health category) in Table 5 indicate that agriculture teachers who perceived the school environment to affect the health of educators miss more days of school due to injuries and communicable diseases. (In Table 5, Group 1 is comprised of those who responded that the school environment did not affect the health of educators, while Group 2 is comprised of those who said that the school environment did affect health.)

Agriculture teachers were asked the question, "To what extent does your immediate administrator assist you in maintaining physical and mental well-being?" A five-point Likert Scale with polar descriptors (1 = none, 5 = much) was used. Thirty percent of agriculture teachers responded (1) none; an additional 19% marked (2). Fifteen percent of teachers marked (4); only 7% responded (5) much.

Table 5

Relationship Between Days Missed (By Health Categories) and
School Environment of Agriculture Teachers

Variable	Group ^a	n	M	SD	t	p
Injuries	1	159	.0016	.020	-2.52	.013*
	2	127	.1102	.487		
Surgery	1	159	.1237	.678	- .29	.771
	2	127	.1470	.664		
Dental	1	159	.0608	.333	- .35	.723
	2	127	.0735	.272		
Emotional or Psychosomatic	1	159	.0480	.191	- .83	.405
	2	127	.0651	.157		
Communicable Diseases	1	159	.1472	.273	-2.22	.027*
	2	127	.2220	.295		
Orthopedic	1	159	.0021	.026	-1.70	.092
	2	127	.0184	.105		
Systemic	1	159	.0830	.490	- .45	.656
	2	127	.1197	.817		
Pregnancy/ Child Care	1	159	.0833	.455	- .73	.469
	2	127	.1358	.706		
Vision/ Hearing	1	159	.0084	.064	- .26	.794
	2	127	.0105	.072		

* $p \leq .05$ ^a 1 - No problem

2 - Yes, problems exist

Note: Adjustments have been made for variables that violated the homogeneity of variance assumption.

Table 6 shows a comparison of teachers who perceived their immediate administrator as assisting in maintaining physical and mental well-being to those who did not. Teachers who perceived a lack of administrative assistance experienced greater abuse/violence from students, more frequent headaches, and more digestive problems.

Table 6

Relationships Between Health Experiences and
Lack of Administrator Assistance As Perceived By Agriculture Teachers

Health Item	Cramers' v*
Digestive Problems	.22
Headaches	.21
Student Abuse/Violence	.19

* $p \leq .05$

Agriculture teachers offered suggestions of ways administrators could better assist teachers. The most common responses included positive feedback, willingness to communicate, and better management of the school environment and facility.

Wellness programs existed in 20% of the schools in this study. In the schools where wellness programs existed, only three out of every five agriculture teachers participated. A comparison of the health of teachers who participated in a wellness program ($n=43$) to those who did not ($n=260$) was made. The differences (by health category) on Table 7 indicate that wellness program participants miss significantly less days of school due to injuries and systemic problems. Differences (by individual health item) indicate that wellness program participants were more apt to use alcohol and missed more days of school due to alcohol use. Though an unusual finding, one must interpret it cautiously. Since wellness program participants were not randomly selected, several plausible explanations exist (i.e. location of wellness programs, participation was under the direction of a chemical dependency counselor, or personality differences) for greater alcohol use.

A number of additional factors may be indirectly related to the school workplace. Fifty-six percent of all respondents were overweight, with 35% being more than 10 pounds overweight. Overweight teachers tended to have more colds and circulatory problems. Irregular meals were a problem for 28% of the respondents; 17% felt they received improper nutrition. Twenty-seven percent indicated that they smoked, dipped, or chewed tobacco. Tobacco users tended to use more alcohol. Thirty percent indicated that their schools had much involvement in educational reform, 59% indicated some involvement, and 11% indicated that their schools had not been involved. A weak relationship existed between educational reform involvement and (a) headaches, (b) circulatory problems, and (c) respiratory problems.

Table 7

Relationship Between Days Missed (By Health Categories) and
Agricultural Teacher Participation in School Wellness Programs

Variable	Group ^a	n	M	SD	t	p
Injuries	1	264	.0530	.341	2.08	.038*
	2	36	.0069	.042		
Surgery	1	264	.1351	.683	.79	.434
	2	36	.0741	.391		
Dental	1	264	.0694	.318	1.67	.098
	2	36	.0278	.093		
Emotional or Psychosomatic	1	264	.0499	.144	- .54	.594
	2	36	.0783	.312		
Communicable Diseases	1	264	.1765	.293	.96	.342
	2	36	.1444	.170		
Orthopedic	1	264	.0088	.074	- .04	.968
	2	36	.0093	.056		
Systemic	1	264	.1053	.681	1.98	.049*
	2	36	.0194	.067		
Pregnancy/ Child Care	1	264	.0881	.514	- .86	.394
	2	36	.2153	.864		
Vision/ Hearing	1	264	.0101	.070	.86	.391
	2	36	.0000	.000		

* $p \leq .05$

^a 1 - No, don't participate in a wellness program

2 - Yes, do participate in a wellness program

Note: Adjustments have been made for variables that violated the homogeneity of variance assumption.

The Interaction of Health and Teacher Efficacy

The most encompassing look at teacher efficacy as it related to teacher health was research that studied health factors as predictors of agriculture teacher efficacy (Westrom, 1990). Health categories and health factors were

used as predictors of high, intermediate, or low agriculture teacher efficacy. Although health categories or factors did not explain enough variance to be effective predictors of teacher efficacy, some meaningful relationships were found to exist. High efficacy and low efficacy groups differed in the following ways: (a) high efficacy teachers missed 0.8 days less school per teacher per year than low efficacy teachers, (b) high efficacy teachers missed more days of school due to systemic problems than low efficacy teachers, (c) high efficacy teachers experienced more skeletal problems than low efficacy teachers, (d) high efficacy teachers used less alcohol than low efficacy teachers, and (e) high efficacy teachers missed fewer days for major surgery than low efficacy teachers.

CONCLUSIONS AND RECOMMENDATIONS

The study concluded that secondary agriculture teachers have experienced a wide range of health care problems (some of which cause absenteeism from their positions as teachers) and have a number of health care concerns. The two problems (influenza and colds) that resulted in the most days of school missed are highly communicable and acute (short and severe). The health care items of highest concern are not necessarily those that the teachers have experienced, though job stress and personal stress appear very high as problems, health care concerns, and causes of days missed from teaching. The laboratory injuries health care item was the second highest concern but was not in the top ten items in terms of days missed. A lack of congruence exists between health care experiences, days missed from teaching because of health care problems, and the concerns of teachers about health care. Also, long-term health care problems may begin at a level that is below the threshold and not become a problem for several years. It can also be concluded that teachers often teach when they are experiencing health care problems.

The findings of this study supported some of the literature reviewed. Teachers perceived the school workplace to be deficient in (a) physical environment, such as laboratory noise and air quality, and (b) administrative assistance in maintaining physical and mental well-being. The data verified that only a small percentage (20%) of schools had wellness programs.

Significant and meaningful relationships exist between: (a) environment and health care experiences, (b) environment and days missed by health area, (c) administrative assistance and health care experiences, and (d) wellness program participation and days missed by health area. The most important relationships were in the health categories of injuries, systemic, and emotional or psychosomatic conditions.

The total significance of the relationship between the health and efficacy of teachers is far from complete. Several plausible ideas have surfaced as a result of the health and efficacy findings to date. Health may have little or nothing to do with the overall effect a teacher has on students. It is possible that good teachers and poor teachers alike have similar health and wellness concerns. The ability of researchers to measure teacher efficacy may be weak. Future studies will only be conclusive when the ability of researchers to measure teacher efficacy is refined. High and low efficacy teachers alike may teach when their health is subpar.

Non-health factors may have such a dramatic impact on teacher efficacy that only a minute amount of variance is explained. Such a finding does not minimize the importance of good health. Differences in teacher efficacy due to health factors may only be measurable if the teachers are used as their own control group. Efficacy of a teacher when well would be compared to the efficacy of the same teacher while experiencing subpar health.

The recommendations have implications for teacher educators, supervisors, school administrators, teachers, and others who have influence in shaping the work-life of secondary agriculture teachers. Recommendations include the following:

- Teachers should be instructed in positive health care practices, including mechanisms for coping with health care concerns such as job and personal stress. This may be as a part of preservice or inservice education.

- Additional study should be made to determine if long-term health care problems and concerns differ from the short-term. (For example, hearing loss may gradually occur and go unnoticed for several years, while certain communicable diseases may occur on a fairly regular basis and be very obvious.)

- Development of a valid wellness program for educators is recommended. This recommendation is based on the direction of relationships aforementioned and the theoretical underpinning of the capability of wellness programs to improve psychosomatic health and reduce systemic disorders.

- Additional research should be carried out to determine the similarities and differences of secondary agriculture teachers with other vocational teachers and secondary teachers in other areas in health care experiences, problems, and concerns.

- Since secondary agriculture teachers obviously teach while experiencing health care problems (particularly in the emotional or psychosomatic area) an investigation to assess the relationship of student achievement to teacher health should be made. Consideration should be given to using individual teachers as their own control, allowing the respondents to compare the efficacy of a teacher when well to the efficacy of the same teacher while experiencing less than ideal health.

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APPENDIX

Educator Health Care Assessment Instrument (EHCAI)
(Copyright, 1988, Department of Agricultural and Extension Education,
Mississippi State University)

EDUCATOR HEALTH STUDY

General Information

Please provide the following general information about yourself. (Remember, do not sign the instrument. All responses will be protected to insure anonymity.)

1. Which of the following best describes the school where you teach? (Circle the number by your response)
 - 1 - Pre-school
 - 2 - Elementary School
 - 3 - Middle/Junior High School
 - 4 - Comprehensive High School
 - 5 - Vocational Center or School (Secondary)
 - 6 - Vocational School (Postsecondary)
 - 7 - Community (Junior) College
 - 8 - College or University
 - 9 - Other (specify) _____
2. What subjects do you teach? _____
3. Which of the following are used in your teaching? (Circle all numbers that apply)
 - 1 - Classroom
 - 2 - Scientific Laboratory
 - 3 - Computer/Office Laboratory
 - 4 - Mechanics Laboratory
 - 5 - Plant/Horticulture Laboratory
 - 6 - Outdoor/Farm Laboratory
 - 7 - Playground/Athletic Fields
 - 8 - Gymnasium
 - 9 - Theater
 - 10 - Music Hall/Rooms
 - 11 - Art Laboratory
 - 12 - Other (specify) _____
4. How many students do you teach in a typical day? _____
5. How many years have you taught? _____
6. Many schools have been involved with educational reforms; others have not. How much has your school been involved in educational reform? (Circle the number by your response)
 - 1 - Not involved
 - 2 - Some involvement
 - 3 - Much involvement
7. Do you receive The Agricultural Education Magazine? (Circle the number by your response)
 - 1 - Yes
 - 2 - No
 - 3 - Unsure
8. What was your age on your last birthday? _____
9. What is your gender? (Circle the number by your response)
 - 1 - Male
 - 2 - Female

Please Return To:
Jasper S. Lee
Mississippi State University
Department of Agricultural and Extension Education
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Mississippi State, MS 39762

EDUCATOR HEALTH CARE ASSESSMENT INSTRUMENT

Part I. Health Care Experiences and Concerns

Please respond to the following health care items. Column I and II deal with your experiences in the last school year. Column III deals with the level of concern among educators for the health care item. PLEASE RESPOND TO ALL THREE COLUMNS.

	<u>COLUMN I</u>		<u>COLUMN II</u>	<u>COLUMN III</u>				
	<u>YOUR</u> <u>EXPERIENCE</u>		<u>DAYS</u> <u>MISSED</u>	<u>CONCERN TO EDUCATORS</u>				
	Have you experi- enced this item in the 1986-87 year? Circle yes or no.		If this item caused you to miss school in the 1986-87 year, list the number of days missed.	Rate the health items in terms of how much you feel they are of concern to educators. Let 5 = highest concern and 1 = lowest concern. The numbers 4, 3, and 2 reflect points between, with 4 higher than 3 and 3 higher than 2.				
				Highest Concern		Lowest Concern		
<u>SAMPLE</u>								
00. Overslept	Yes	No	_____ 1 _____	5	4	3	(2)	1
<u>Injuries</u>								
1. Laboratory injuries (including shops, green- houses, chemical labs, etc.)	Yes	No	_____	5	4	3	2	1
2. School injuries resulting from accidents other than in laboratories	Yes	No	_____	5	4	3	2	1
3. Abuse/violence by students	Yes	No	_____	5	4	3	2	1
4. Other (specify) _____	Yes	No	_____	5	4	3	2	1
<u>Surgery</u>								
5. Major surgical needs that require admission to a hospital	Yes	No	_____	5	4	3	2	1
6. Minor surgical needs (outpatient)	Yes	No	_____	5	4	3	2	1
7. Other (specify) _____	Yes	No	_____	5	4	3	2	1
<u>Dental</u>								
8. Gum disease	Yes	No	_____	5	4	3	2	1
9. Teeth	Yes	No	_____	5	4	3	2	1
10. Other (specify) _____	Yes	No	_____	5	4	3	2	1
<u>Emotional or psychosomatic</u>								
11. Job stress	Yes	No	_____	5	4	3	2	1
12. Personal stress (including family and marital)	Yes	No	_____	5	4	3	2	1
13. Headaches	Yes	No	_____	5	4	3	2	1
14. Use of alcohol	Yes	No	_____	5	4	3	2	1
15. Use of drugs	Yes	No	_____	5	4	3	2	1
16. Use of tobacco	Yes	No	_____	5	4	3	2	1
17. Depression	Yes	No	_____	5	4	3	2	1
18. Insomnia	Yes	No	_____	5	4	3	2	1
19. Fatigue (including exhaustion)	Yes	No	_____	5	4	3	2	1
20. Dizziness (including fainting)	Yes	No	_____	5	4	3	2	1
21. Other (specify) _____	Yes	No	_____	5	4	3	2	1

COLUMN I		COLUMN II	COLUMN III				
YOUR EXPERIENCE		DAYS MISSED	CONCERN TO EDUCATORS				
Have you experi- enced this item in the 1986-87 year? Circle yes or no.		If this item caused you to miss school in the 1986-87 year, list the number of days missed.	Rate the health items in terms of how much you feel they are of concern to educators. Let 5 = highest concern and 1 = lowest concern. The numbers 4, 3, and 2 reflect points between, with 4 higher than 3 and 3 higher than 2.				
			Highest Concern				Lowest Concern
<u>Communicable diseases</u>							
22. Colds	Yes No	_____	5	4	3	2	1
23. Influenza (flu)	Yes No	_____	5	4	3	2	1
24. AIDS	Yes No	_____	5	4	3	2	1
25. Sexually transmitted diseases (other than AIDS)	Yes No	_____	5	4	3	2	1
26. Others such as measles, mumps, chicken pox (specify) _____	Yes No	_____	5	4	3	2	1
<u>Orthopedic</u>							
27. Arthritis	Yes No	_____	5	4	3	2	1
28. Foot problems	Yes No	_____	5	4	3	2	1
29. Other (specify) _____	Yes No	_____	5	4	3	2	1
<u>Systems</u>							
30. Circulatory (including blood, heart, blood vessels, blood pressure etc.)	Yes No	_____	5	4	3	2	1
31. Digestive (including ulcers, indigestion, etc.)	Yes No	_____	5	4	3	2	1
32. Skeletal problems (including back, muscles, bones)	Yes No	_____	5	4	3	2	1
33. Genitourinary (including organs of reproduction, kidneys, bladder, etc.)	Yes No	_____	5	4	3	2	1
34. Respiratory (including sinus, hay fever, pneu- monia, etc.)	Yes No	_____	5	4	3	2	1
35. Glandular problems	Yes No	_____	5	4	3	2	1
36. Nervous system problems	Yes No	_____	5	4	3	2	1
37. Cancer	Yes No	_____	5	4	3	2	1
38. Skin problems	Yes No	_____	5	4	3	2	1
39. Other (specify) _____	Yes No	_____	5	4	3	2	1
<u>Pregnancy/child care</u>							
40. Child care	Yes No	_____	5	4	3	2	1
41. Maternity/paternity needs	Yes No	_____	5	4	3	2	1
42. Childbirth	Yes No	_____	5	4	3	2	1
43. Other (specify) _____	Yes No	_____	5	4	3	2	1
<u>Vision/hearing</u>							
44. Eyesight problems (including sight loss, eye stress, etc.)	Yes No	_____	5	4	3	2	1
45. Hearing loss	Yes No	_____	5	4	3	2	1
46. Other (specify) _____	Yes No	_____	5	4	3	2	1

Part II. Health Related Factors

The following questions relate to the general health status of teachers.

1. Does your school/college have a wellness program? (Circle the number by your response)
1 - No (Go to question 3)
2 - Yes (Describe) _____
2. If yes, do you participate in it?
1 - No
2 - Yes
3. Which category most accurately describes your weight? (Circle the number by your response)
1 - Underweight
2 - Within normal range
3 - 1-10 pounds overweight
4 - 11-25 pounds overweight
5 - Greater than 25 pounds overweight
4. Which category most accurately describes your nutrition and meal consumption? (Circle the number by your response)
1 - Regular meals, good nutrition
2 - Regular meals, improper nutrition
3 - Irregular meals, good nutrition
4 - Irregular meals, improper nutrition
5. Do you smoke, dip, or chew tobacco? (Circle the number by your response)
1 - Yes
2 - No
6. Does your school environment affect the health of educators? (Circle the number by your response)
1 - No (Go to question 8)
2 - Yes
7. If yes, check which of the following are problems:

	<u>Classroom</u>	<u>Lab</u>	<u>Office</u>
Instructional chemicals	___	___	___
Headlice	___	___	___
Rodents	___	___	___
Lighting	___	___	___
Acoustics	___	___	___
Noise level	___	___	___
Temperature	___	___	___
Air quality	___	___	___
Cleanliness	___	___	___
Safety features	___	___	___
School violence	___	___	___
Radiation	___	___	___
Asbestos	___	___	___
Other (specify) _____	___	___	___

8. To what extent does your immediate administrator assist you in maintaining physical and mental well-being? (Circle the number that best represents your feelings)

MUCH NONE
5 4 3 2 1

9. How can administrators assist teachers in maintaining physical and mental well being?
